December 30, 2003

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Dear Dr. Vanderslice:

Per your instructions, I have reviewed the report entitled *Site Investigation Report, Bay Street Suspected Fill Area, Tiverton, Rhode Island*, (VHB, October 2003) with its accompanying *Human Health Risk Assessment for the Bay Street Suspected Fill Area, Tiverton, Rhode Island* (ENVIRON, October 2003). This letter provides my comments on the site investigation report (SIR) and my preliminary review of the human health risk assessment (HHRA). My overall conclusion of the SIR is that additional information is needed; therefore, conclusions of the HHRA are premature. For this reason, comments on the HHRA area global in nature and my review has not included detailed verification of the risk calculations. Because decisions by New England Gas Company (NEGC) to conduct additional investigations or response actions at each parcel were based, in part, on the HHRA, my comments on the HHRA are presented first. These comments are followed by global comments on the SIR, which in turn is followed by detailed comments on the investigative findings for each property lot. Accompanying this comment letter is a spreadsheet entitled "Summary of Bay Street Suspected Fill Area Site Investigation Report." This spreadsheet identifies, for each investigated parcel:

- NEGC's recommendation for each lot;
- The sample (boring) number and depth interval for each sample on the lot;
- Notable physical observations in the soil boring logs;
- Rhode Island Department of Environmental Management (RIDEM) Method 1 residential soil standard exceedences in soil (except for arsenic detected at less than 15 mg/kg and detections of beryllium, attributed to background conditions);
- The summary results of the ENVIRON Method 3 risk assessment performed for certain parcels (when reviewing these, please also consider comments on the risk assessment approach); and,
- Miscellaneous comments.

Preliminary Review of the Human Health Risk Assessment

Overall, a preliminary review suggests that the HHRA has been acceptably performed, although no verification of the calculations has been conducted.[1] However, because of the preliminary nature of the Site Investigation (see comments on the SIR in a subsequent section), performance of an HHRA on either a lot-specific, block-specific, or area-specific basis is premature. Most lots had between six and ten samples, apportioned between surface and subsurface depth intervals. This sample density for individual lots is insufficient for determining that no further action is needed, given the variable nature of fill itself and the probable variable nature of fill placement. Therefore, NEGC's recommendations for no further action at individual lots are not supported by the data.

The prematurity of the HHRA notwithstanding, a number of factors were noted during the preliminary review that should be considered in any future revision of the HHRA.

Constituents of concern

U.S. EPA soil screening levels (SSLs) were used to identify constituents of concern (COCs) for the HHRA. If the maximum detected or 95% upper confidence limit (UCL) concentration of the constituent was less than one-quarter of the SSL for carcinogens or less than one-tenth of the SSL for non-carcinogens, and the sum of the endpoint-specific Hazard Index (HI) was less than one, the constituent was not adopted as a COC. The detection frequency of the constituent was also considered, although the criterion for frequency was unclear (1,1-biphenyl was detected 12 times; this is not infrequent). Twenty constituents were excluded as COCs based on this screening, most of which would contribute little to the overall risk if included. For completeness, however, constituents potentially associated with manufactured gas plant (MGP) waste, such as 1,1-biphenyl and dibenzofuran, should not be excluded. Since risk calculations are semi-automated by spreadsheets, inclusion of additional constituents is not burdensome.

Arsenic and beryllium were excluded as COCs on the basis of background. This approach is acceptable if the risks are presented as release-based only. However, it should be made clear that health risks are higher than presented in the HHRA as a result of the presence of arsenic and beryllium.

Individual Property Assessment

To identify whether an individual property was assessed, each property was screened. If the maximum/95% UCL concentration of the COC in the 0-2 feet below ground surface (ft bgs) interval was less than the SSL, the total cancer risk was less than $1x10^{-5}$, and the total hazard index (HI) was less than 1, then no further assessment on the individual property was performed. Thirty-three lots were excluded on the basis of this screening. Two factors regarding this approach:

[1] If this or a latter version of the risk assessment is ultimately used to make Site decisions, a diskette/CD containing the actual risk calculations is requested for review.

- The RIDEM Remediation Regulations require that the maximum cancer risk for all COCs be below $1x10^{-5}$ **and** the maximum cancer risk for individual COCs be below $1x10^{-6}$. If a chemical has a chemical-specific risk above $1x10^{-6}$, it is considered above acceptable levels even if the total cancer risk is below $1x10^{-5}$. The screening process needs to be modified to comply with this requirement.

- Limiting the soil depth interval considered in the screening to 0-2 feet ft bgs presumes that an environmental land usage restriction (ELUR) is placed on each property, preventing disturbance of soil and requiring on-going record keeping. This is not appropriate because no landowner has, as of yet, agreed to place an ELUR on his or her property. In addition, this approach denies the landowner the opportunity to consider the risks associated with his or her property in the absence of any action (i.e., baseline conditions). The HHRA should assume that all soil above the water table is potentially accessible.

Exposure Assessment

A few assumptions made in the exposure assessment are inconsistent with approaches generally used by RIDEM, are not realistic, or would require an ELUR to implement. These are noted below:

- The HHRA used only soils from 0-2 ft bgs, which requires implementation of an ELUR. This is inappropriate. The HHRA should assume that all soil on a property is potentially accessible.

- Relative oral absorption factors (RAF) were used. This approach has not been typically used by RIDEM, and support for the values used should be presented.

- Exposure factors were aggressive, minimizing the degree of soil exposure. Given that the impacted area is residential, the HHRA should reasonably reflect a conservative degree of exposure. The residential exposure frequency was assumed to be 350 days per year, which is appropriate, but only 153 days of this resulted in appreciable soil exposure. The balance of this time, 212 days per year, was assumed to occur indoors at greatly reduced soil ingestion (e.g., 10 mg/day for children versus 200 mg/day used in the Remediation Regulations), dermal contact, and soil adherence rates. A rate of 153 days per year of soil exposure is a low estimate of potential frost-free dates for Tiverton, which is located along the water. RIDEM has conservatively assumed that soil contact could occur 350 days per year, as do SSLs. This approach has limited the degree of COC intake through soil ingestion and soil dermal contact and has minimized the resultant risk.

Toxicity Values

The HHRA did not assess the non-carcinogenic endpoint for carcinogenic polycyclic aromatic hydrocarbons (PAHs). Surrogate toxicity values should be derived/adopted to assess the non-carcinogenic effects of all carcinogenic PAHs and other carcinogenic COCs.

Review of the Site Investigation Report

This site investigation (SI) should be considered the first stage of investigations needed to adequately characterize the nature and extent of MGP waste in the Bay Street area. While this "first look" has provided valuable information, it should not be considered sufficient to rule out potential health risks at the property-, block-, or area- level or to identify the scope of needed response actions.

The SIR did not provide a sufficient overview of the operations of the former Fall River Gas Company or the probable placement of fill in the neighborhood. Without this, one is guessing as to what constituents may be present in the fill, making knowledge of the adequacy of the site investigation incomplete. One then must assume that any MGP waste stream (e.g., coke, coal tar, purifier wasters, ammoniacal wastes) could have made it into the neighborhood. The SI focused on analytes contained in common analytical techniques (e.g., SW-846 methods 8260 and 8270), but did not include "markers" for MGP waste, such as sulfates/sulfides, iron, and ammonia. While perhaps not significant in terms of toxicity, analysis of these parameters could be useful in identifying the limits of fill placement in the neighborhood.

The majority of the soil samples collected in the neighborhood contained potential evidence of MGP waste, including the following potential markers:

- Ash
- Slag
- Coal
- Coke
- Black rock fragments
- Blue-, green-, or back-stained materials
- Brick fragments (potentially from bench housings)
- Ceramic fragments (possible retort fragments)
- Wood pieces (commonly used in scrubbers)
- Iron (also used in scrubbers)
- Chemical odors
- Analytical presence of cyanide
- Analytical presence of PAHs

The presence of PAHs and cyanide was prevalent. While detections and concentrations of constituents varied from property to property, and possible with proximity to roads, these findings support the initial premise that the Bay Street area has received fill material from the former MGP plant, and it is no longer "suspected."

The investigative approach to sample each individual property was necessary to identify overt contamination requiring immediate responses. For most properties, the level of contamination was moderate; not requiring immediate response actions yet requiring a permanent remedy to prevent long-term exposure of residents to the contamination.

Overall, groundwater and surface water investigations were inadequate and remain essentially uncharacterized. NEGC should prepare investigative work plans for these media for review by the Department.

Given that evidence of MGP waste is prevalent in soil throughout the neighborhood, NEGC should consider focusing on appropriate response actions for the entire neighborhood, defining the boundaries of the fill area, and adequately characterizing groundwater and surface water impacts, rather than attempting to characterize and categorize soil on each individual property. Given the anticipated difficulty in satisfactorily categorizing each property (because of the heterogeneous nature of the fill material), it may be more expedient and cost-effective to focus on solutions.

Block 3 Summary

Additional investigations were proposed by NEGC for four lots (304, 307, 308, and 314). Additional investigations are also warranted on Lots 301, 301A, 303, 305, 306, 309, 310, 312, and 313, based on the suggestive evidence of MGP waste (ash, slag, coal and black rock fragments, black-stained soil, blue-green staining, chemicals odors, or the presence of cyanide), or the presence of constituents at concentrations above Method 1 S-1 soil standards. Lot 309, while not exhibiting any indication of MGP waste, did exhibit low PID readings in some soil samples and adjoins two lots already identified for additional investigation (307 and 308). Lot 311 was not initially investigated, but adjoins Lot 314, identified for additional investigation.

Block 3 Individual Evaluations

301: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in one soil boring from this property (ash), but was not analyzed. While no constituent was detected above Method 1 residential soil standards, the presence of elevated photoionization detector (PID) readings at SS-2 (26.7 ppm), SS-4 (12.4 ppm), and SS-6 (71 ppm) at approximately 0-1 ft bgs is unexplained. Soil from borings Judson-08 and Judson-09, collected from Judson Street adjacent to this property, contained coal pieces at a depth of 8 to 9 ft bgs. However, no samples from this depth interval were collected or analyzed from this lot.

301A: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (ash, slag, glass fragments). PAHs were detected in two surface soil samples (SS3 and SS4) near the western portion of the property. Soil samples were not analyzed at this depth interval to the north, east, south (301), or west (301B) of these locations.

301C: No further action was proposed for this property by NEGC. No overt evidence of MGP waste was identified in soil borings advanced on this property. No constituents were detected above RIDEM Method 1 standards. .

301D: No further action was proposed for this property by NEGC. No overt evidence of MGP waste was identified in soil borings advanced on this property. No constituents were detected above RIDEM Method 1 standards. Soil from borings Judson-06 and Judson-07, located in Judson Street slightly west of and adjacent to this lot, contained odors and slightly elevated PID readings to a depth of 3 ft bgs, as well as pieces of coal (no chemical analysis of soil samples was performed).

303: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (slag, brick, and glass fragments). No constituents were detected above RIDEM Method 1 standards. Soil collected from borings Bay-01, Bay-02, and Hooper-01 collected in Bay and Hooper streets adjacent to the property, exhibited odors to a depth of 8 ft bgs along Bay Street and 3 ft bgs along Hooper Street. Neither boring from Bay Street was chemically analyzed. Hooper-01 was analyzed and contained non-detectable concentrations of all analytes.

304: This property was categorized for short-term immediate response actions and further investigation by NEGC. Numerous indicators of MGP waste were identified on Site, including slag, coal fragments, wood pieces (commonly used in scrubbers), brick (potentially from bench housings), ceramic (possible retort fragments), blue/green material, and the presence of cyanide. PAHs, lead and arsenic were detected at concentrations above Method 1 residential soil standards.

305: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). No constituents were detected above RIDEM Method 1 standards.

306: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (ash, coal, chemical odors, blue-green soil staining, and the presence of cyanide). Cyanide, PAHs and lead exceeded their Method 1 residential soil standards. Soil borings advanced along Judson Street adjacent to this property (Judson-02 and Judson-03) describe soil as possessing a strong odor. Judson-02, near the southeast corner of Lot 306, had some of the highest concentrations of PAHs and cyanide found throughout the study area (Judson-03 was not chemically analyzed).

307: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (ash and brick). PAHs were detected at concentrations above Method 1 standards. A soil boring was advanced adjacent to this property along Hooper Street (Hooper-02), but was absent from the EA report. This boring should be examined to assist in identifying appropriate depth intervals for further investigation.

308: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (ash, coal, and coal dust). PAHs and lead were

detected at concentrations above Method 1 soil standards. Soil from boring Judson-03, located in Judson Street adjacent to this lot, contained odors to a depth of 7.7 ft bgs.

309: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (black rock fragments). No constituents were detected above RIDEM Method 1 standards.

310: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (black rock fragments, wood fragments). No constituents were detected above RIDEM Method 1 standards. Soil from boring Judson-04, located in Judson Street adjacent to this lot, contained odors and elevated FID readings to a depth of 3 ft bgs, but no chemical analysis was performed.

312: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (wood ash, the presence of cyanide). No constituents were detected above RIDEM Method 1 standards. Soil from borings Judson-04 and Judson-05, located in Judson Street slightly west and east of this lot, contained odors and elevated FID readings to a depth of 3 ft bgs, but no chemical analysis was performed.

313: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (brick, woody material, the presence of cyanide). No constituents were detected above RIDEM Method 1 standards.

314: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (brick, asphalt, and the presence of cyanide). PAHs were detected at 0314-SS4 above Method 1 soil standards.

Block 5 Summary

Additional investigation of one lot, 518, has been proposed by NEGC. Additional investigation is also warranted on Lots 511, 516, and 519 based on the suggestive presence of MGP waste (black-stained soil, presence of cyanide), or the presence of PAHs, cyanide, or other constituents on the property or in the roadway adjacent to the property at concentrations above Method 1 S-1 soil standards. Additionally, lots east of 512 and 516 should be investigated until un-impacted areas are consistently found.

Block 5 Individual Evaluations

511: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings (black soil staining, black rocks, coal, slag, brick and wood fragments, and the presence of cyanide). Lead, TPH, PAHs and cyanide were identified at concentrations above Method 1 residential soil standards in three shallow soil samples. Soil borings advanced along Bay Street adjacent to this property (Bay-01, Bay-05, Bay-06, Bay-07, Bay-08, and Bay-09)

consistently exhibited odors to a depth of 8 ft bgs. Analysis of Bay-05 (4-5 ft bgs) identified eight PAHs above Method 1 residential soil standards.

511A: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings (the presence of cyanide). Soil boring Canonicus-01 (1-2 ft bgs), advanced adjacent to this lot, did not contain elevated concentrations of PAHs but did contain cyanide below its Method 1 soil standard.

512: No further action was proposed for this property by NEGC. No suggestive evidence of MGP waste was identified in soil borings. No borings were advanced near this property along Hooper Street.

516: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings (black staining of soil, presence of cyanide). Several PAHs were detected in one shallow soil sample location above Method 1 residential soil standards. A soil boring was advanced adjacent to hits property in Canonicus Street (Canonicus-02), but was absent from the EA report and could not be reviewed.

518: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (slag, black rock fragments, and brick fragments). PAHs and lead were detected above Method residential 1 soil standards.

519: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). One soil sample (0519-SS1) contained PAHs above Method 1 residential soil standards. Cyanide was also identified in two soil samples, suggesting the presence MGP waste.

Block 8 Summary

Additional investigation of Lots 801, 806, 807, 809, and 810 has been proposed by NEGC. Additional investigation is also warranted on Lots 802, 803, 804, 805, 810A, 811, 812, and 815 based on the potential presence of MGP waste (presence of coal, coal dust, ash, slag, burnt wood chips, brick fragments, black-stained rock or soil, or the presence of cyanide), or the presence of PAHs, cyanide, or other constituents on the property or in the roadway adjacent to the property at concentrations above Method 1 S-1 soil standards. Lots 801 and 812 both contained exceedances of Method 1 residential soil criteria; however, no properties east of these lots were investigated. The investigation should be expanded eastward until un-impacted areas are consistently found.

Block 8 Individual Evaluations

801: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (coal ash, slag, brick fragments, and the presence of

cyanide). PAHs and lead were detected in shallow and deeper soil above Method 1 residential soil standards. Soil borings advanced along Hilton Street adjacent to this property (Hilton-06 and Hilton-07) exhibited slight odors in the first few feet, but were not chemically analyzed.

802: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (black rock fragments, presence of cyanide). Lead and PAHs were detected at one location above Method 1 residential soil standards. Soil borings advanced along Hilton Street adjacent to this property (Hilton-05 and Hilton-06) exhibited slight odors in the first few feet, but were not chemically analyzed.

803: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (black rock fragments, burnt wood chips). While no analyzed constituents were detected above Method 1 residential soil standards, this lot is positioned between Lots 802 and 804, both of which contained constituents above Method 1 residential soil standards. Soil boring Hilton-04, located in Hilton Street adjacent to the property, exhibited odors and contained a red-brown crumbly organic layer (wood chips with iron filings were sometimes used in purifier beds).

804: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (coal between 1-1.5 ft bgs, the presence of cyanide). Lead was detected at one location above its Method 1 residential soil standard. Soil boring Hilton-04, located in Hilton Street slightly east of the property, exhibited odors and contained a red-brown crumbly organic layer (wood chips with iron filings were sometimes used in purifier beds).

805: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (ceramic fragments, the presence of cyanide). Lead was detected at one location above its Method 1 residential soil standard.

806: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (blackened sand, brick fragments, the presence of cyanide). PAHs and lead were detected at concentrations above their Method 1 residential soil standards. Soil boring Hilton-02, located slightly west of the property in Hilton Street, contained red/brown sand (again, potentially associated with iron wastes), as well as a few PAHs above Method 1 residential soil standards.

807: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). PAHs were detected at two locations at concentrations above Method 1 residential soil standards. Soil boring Hilton-02, located adjacent to the property in Hilton Street, contained red/brown sand (again, potentially associated with iron wastes), as well as a few PAHs above Method 1 residential soil standards.

809: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). PAHs were detected at one location at concentrations above Method 1 residential soil standards. Soil boring Hilton-01, located adjacent to the property in Hilton Street, contained two PAHs above Method 1 residential soil standards.

810: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). PAHs and lead were detected at two locations at concentrations above their Method 1 residential soil standards. Soil boring Hilton-01, located adjacent to the property in Hilton Street, contained two PAHs above Method 1 residential soil standards. Soil borings Bay-11 and Bay-12, located on the western boundary of the property along Bay Street, exhibited odors to a depth of 8 ft bgs, but neither were chemically analyzed.

810A: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (traces of ash and brick and the presence of cyanide). While no soil sample contained constituents at concentrations above Method 1 residential soil standards, sample 810-SS1 (which did have an exceedance) is located a few feet from the property border on 810A, and soil borings Bay-11 and Bay-12, located on the western boundary of the property along Bay Street, exhibited odors to a depth of 8 ft bgs.

811: No further action was proposed for this property by NEGC. No overt evidence of MGP waste was identified in soil borings from this property and No soil sample contained constituents at concentrations above Method 1 residential soil standards. The adjacent soil boring Canonicus-02 was absent form the EA report.

812: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (black ash, slag, brick fragments, and coal dust). PAHs and lead were detected at concentrations above their Method 1 residential soil standards in two locations.

815: No further action was proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). No soil sample contained constituents at concentrations above Method 1 residential soil standards and while the adjacent soil boring Canonicus-01 did not contain elevated concentrations of PAHs, it did contain cyanide.

Block 15 Summary

Additional investigation of Lots 1504, 1506, and 1512 has been proposed by NEGC. Additional investigation is also warranted on Lots 1501, 1505, 1507, 1508, 1509, 1510, and 1511 based on the potential presence of MGP waste (presence of coal, coal dust, ash, slag, burnt wood chips, brick fragments, glass fragments, chemical odor, blue- or black-stained rock or soil, or the presence of

cyanide), or the presence of PAHs, cyanide, or other constituents on the property or in the roadway adjacent to the property at concentrations above Method 1 S-1 soil standards.

Block 15 Individual Evaluations

1501: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (ash, slag, chemical odor, blue/black staining of gravel/soil, the presence of cyanide). PAHs, cyanide, lead, and arsenic were detected in shallow and deeper soils at three locations on Site above Method 1 residential soil standards. The adjacent soil boring Hilton-07 contained benzo(a)pyrene above its Method 1 residential soil standard. Lots 1501 and 1604 both contained exceedances of Method 1 residential soil criteria; however, no properties east of these lots were investigated. The investigation should be expanded eastward until un-impacted areas are consistently found.

1504: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property ("iron concentrations"). PAHs were detected in two locations at concentrations above their Method 1 residential soil standards. The adjacent soil boring, Chase-03, did not contain detectable concentrations of any constituent.

1505: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (brick and wood fragments). No soil sample contained constituents at concentrations above Method 1 residential soil standards, but the adjacent soil boring, Chase-02, contained odors to a depth of about 4 ft bgs.

1506: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (charred wood, the presence of cyanide). PAHs were detected in two locations at concentrations above their Method 1 residential soil standards.

1507: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). Lead was detected at one location at a concentration above its Method 1 residential soil standard. Adjacent soil borings Bay-13 and Bay-14, while not chemically analyzed, contained a slight odor and measurable FID readings to and below the water table (maximum 41.4 ppm).

1508: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). Lead was detected at one location at a concentration above its Method 1 residential soil standard. Soil boring Hilton-02, located adjacent to the property in Hilton Street, contained red/brown sand and a few PAHs above Method 1 residential soil standards.

1509: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). PAHs were detected at one location at a concentration above Method 1 residential soil standards.

1510: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (trace coal, glass, blue-stained gravel, the presence of cyanide). PAHs were detected at one location at a concentration above Method 1 residential soil standards.

1511: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (trace glass, coal/asphalt/slag, the presence of cyanide). No constituents were detected at concentrations above Method 1 residential soil standards. The impacted area on 1512 is located adjacent to the eastern boundary of this property.

1512: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (the presence of cyanide). PAHs, lead, and arsenic were detected at concentrations above Method 1 residential soil standards. The area of elevated arsenic abuts the eastern border of Lot 1511.

Block 16 Summary

Additional investigation of Lots 1604, 1606A, 1607, 1608, has been proposed by NEGC. Additional investigation is also warranted on Lots 1606, 1606B, and 1609 based on the potential presence of MGP waste (presence of slag, brick and wood fragments, the presence of cyanide), or the presence of PAHs, cyanide, or other constituents on the property or in the roadway adjacent to the property at concentrations above Method 1 S-1 soil standards. Soil borings for Lots 1608 and 1609 were absent from the SIR, so the physical findings of the boring program could not be evaluated. Lots 1604 and 1609 both contained exceedances of Method 1 residential soil criteria; however, no properties east of these lots were investigated. The investigation should be expanded eastward until un-impacted areas are consistently found.

Block 16 Individual Evaluations

1604: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (slag, brick, coal, black carboniferous rock, and the presence of cyanide). PAHs and lead were detected in both shallow and deeper soils at concentrations above Method 1 residential soil standards. No soil borings were conducted along A Connell Street.

1606: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (brick dust, wood, and the presence of cyanide). No constituents were detected in soil borings at concentrations above soil standards.

1606A: Further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in soil borings from this property (slag, coal, and the presence of cyanide). PAHs and lead were detected at two locations above Method 1 residential soil standards.

1606B: No further action is proposed for this property by NEGC. Potential evidence of MGP waste was identified in one soil boring from this property (slag). No constituents were detected in soil borings at concentrations above soil standards.

1607: Further action is proposed for this property by NEGC. While no overt presence of materials indicative of MGP waste was identified, PAHs were detected at concentrations above Method 1 residential soil standards. The adjacent soil boring, Chase-02, while not chemically analyzed, exhibited odors to a depth of about 3 ft bgs.

1608: Further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. PAHs and lead were detected at concentrations above Method 1 residential soil standards.

1609: No further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. PAHs and lead were detected at concentrations above Method 1 residential soil standards at four locations.

Block 21 Summary

No additional investigation of any lot has been proposed by NEGC. Additional investigation may be warranted on all lots based on the potential presence of MGP waste, which could not be evaluated because the soil boring logs were absent from the SIR. Lots 2102, 2103, and 2105 contained exceedances of Method 1 residential soil criteria.

Block 21 Individual Evaluations

2102: No further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. Lead was detected at two locations at concentrations above its Method 1 residential soil criteria.

2103: No further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated.

PAHs and lead were detected at two locations at concentrations above its Method 1 residential soil criteria.

2104: No further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. No soil sample contained exceedances of Method 1 residential soil criteria.

2105: No further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. PAHs and lead were detected at two locations at concentrations above its Method 1 residential soil criteria.

Block 22 Summary

Additional investigation of one lot, 2206, has been proposed by NEGC. Additional investigation may be warranted on the remaining lots based on the potential presence of MGP waste, which could not be evaluated because the soil boring logs were absent from the SIR. Lots 2202, 2205, and 2206 contained exceedances of Method 1 residential soil criteria.

Block 22 Individual Evaluations

2202: No further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. PAHs and lead were detected at three locations at concentrations above its Method 1 residential soil criteria.

2205: No further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. Lead was detected at one location at a concentration above its Method 1 residential soil criteria.

2206: Further action is proposed for this property by NEGC. Soil borings for this property were absent from the SIR, so the physical findings of the boring program could not be evaluated. PAHs and lead were detected at four locations at concentrations above its Method 1 residential soil criteria.

If you have any questions regarding this review, please contact me weekdays at (401) 330-1220.

Sincerely,

Cynthia Fuller
Senior Risk Assessor